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Arthroscopy in Small Animals

Although descriptions of the use of arthroscopy in small animals date back to the mid 1970s, clinical use of arthroscopy as a primary diagnostic and treatment modality gained popularity in the mid 1990s. This recent expansion of interest results from several factors, including formal training mechanisms, the advent and availability of video arthroscopes and instrumentation specifically suited for small animal procedures, and advanced capabilities for improved treatment in our patients.

Advantages

The primary advantage of arthroscopy is its minimally invasive nature, which translates into less tissue trauma, less pain, shorter recovery times, lower complication rates, and more functional recovery than open arthrotomy. The other advantages are less tangible but can be as important; they include visual magnification of the areas of interest, improved access to intra-articular structures, and maintenance of anatomic relationships during surgery. All of these factors lead to more thorough and detailed evaluation of joints and the potential for more precise and optimal treatment.

Disadvantages

The primary deterrent to use of arthroscopy in small animals is the cost of the equipment, both initially and for maintenance. The smaller

scopes and instrumentation used for small animal joints are more fragile and susceptible to damage. Another major reason why orthopedic surgeons are reluctant to incorporate arthroscopy into everyday use is the initial technical challenge. Many hours of formal training and clinical practice are required to gain the proficiency needed to make arthroscopy efficient, atraumatic, and beneficial to patients.

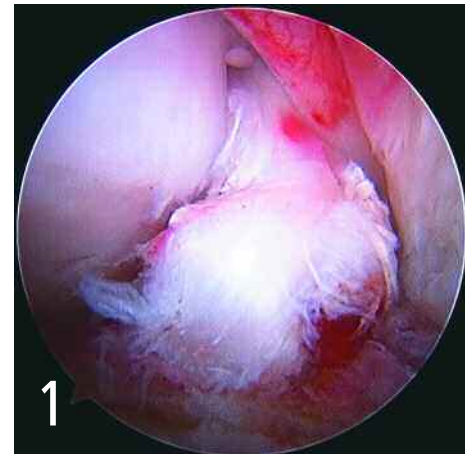
Indications

The joints that most commonly undergo arthroscopic evaluation are the stifle, elbow, shoulder, hip, hock, and carpus.

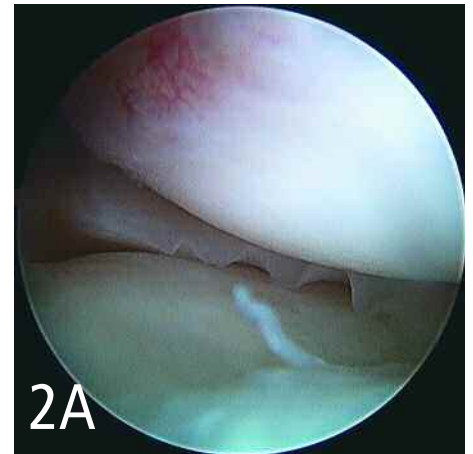
Stifle Joint

In our practices, the stifle is the most commonly “scoped” joint. Typical indications include diagnosis and treatment of cruciate ligament disease (**Figure 1**), meniscal injury (**Figures 2A and B**), and osteochondritis dissecans (OCD). Arthroscopy provides magnification, access, and fluid distention, allowing a more thorough evaluation of the stifle joint than with arthrotomy. Damaged cranial cruciate ligaments can be accurately debrided with small power-driven shavers. Meniscal tears can be identified and treated with partial meniscectomy or, in some cases, repaired. OCD lesions can be debrided and autogenous osteochondral grafts placed via arthroscopy.

continues



Torn cranial cruciate ligament



Normal caudal horn of the medial meniscus



Torn caudal horn of the medial meniscus

OCD = osteochondritis dissecans

Elbow

The primary indications for elbow arthroscopy are coronoid disease (**Figure 3**) and OCD evaluation and treatment. In addition, the elbow joint of patients with radiographic evidence of degenerative joint disease can be inspected to assess the degree and location of cartilage damage. Intracondylar fracture reduction can be assisted with arthroscopic inspection as well.

Shoulder

The shoulder is emerging as the joint from which the most information has been gained by using arthroscopy over arthrotomy. As any orthopedic surgeon will attest, visualization of the shoulder joint is limited with arthrotomy. With arthroscopy, the shoulder joint can be inspected very thoroughly. Many lesions of the biceps tendon, medial and lateral glenohumeral ligaments, subscapularis tendon, glenoid, and labrum can be documented only with arthroscopy. OCD of the caudal humeral head (**Figure 4**) can be readily treated, and many treatment modalities have been developed to treat conditions and injuries of the shoulder that were not even recognized before the use of arthroscopy.

Hock

In our practices, treatment of OCD lesions of the talus is the most common application of arthroscopy in the tarsocrural joint.

Hip

Hip arthroscopy is an important part of our standard surgical evaluation of patients undergoing triple pelvic osteotomy (TPO). With arthroscopy, damage to articular cartilage or the labrum can be identified, which may alter the prognosis and is a contraindication for TPO (**Figure 5**).

Carpus

The antebrachial carpal joint can be accessed relatively easily via arthroscopy. Primary indications include assessment of injuries resulting in damage to the palmar carpal ligaments (hyperextension injuries) and collateral ligaments, fractures of the radial carpal bone, and damage to the radial carpal-ulnar carpal ligament. Again, magnification, scope access, and ability to evaluate the joint in functional and stressed positions have made arthroscopy an invaluable tool in improving diagnosis and prognostication for carpal joint injuries.

CAUTION
It is difficult to become proficient at arthroscopy and even more difficult to master. Practitioners should seek orthopedic surgeons in their area who have a special interest and proficiency in arthroscopy when referring patients for evaluation and treatment of joint abnormalities and injuries.

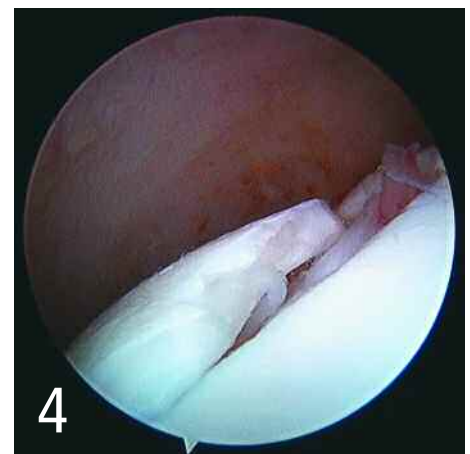
Summary

The key benefits to arthroscopy include accessibility of areas of joints that cannot be visualized with open arthrotomy and magnification and visualization of structures in a fluid-distended and functional environment. These advantages and the minimally invasive nature of the procedure mean a better and more thorough evaluation with less trauma to tissues. ■

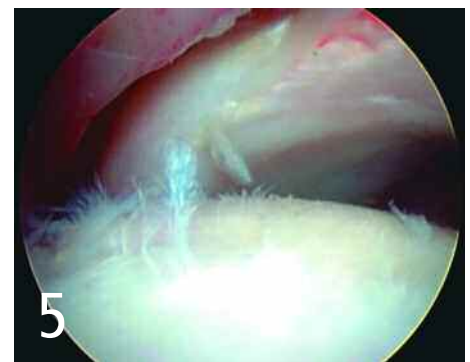
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Fragmented coronoid process



OCD of the caudal humeral head



Moderate to severe cartilage damage of the femoral head

OCD = osteochondritis dissecans; TPO = triple pelvic osteotomy